



UNITED STATES PATENT AND TRADEMARK OFFICE

UNITED STATES DEPARTMENT OF COMMERCE
United States Patent and Trademark Office
Address: COMMISSIONER FOR PATENTS
P.O. Box 1450
Alexandria, Virginia 22313-1450
www.uspto.gov

APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
-----------------	-------------	----------------------	---------------------	------------------

10/551,774

10/03/2005

Ian Robert Wheeler

117-673

4722

23117 7590 12/22/2008
NIXON & VANDERHYE, PC
901 NORTH GLEBE ROAD, 11TH FLOOR
ARLINGTON, VA 22203

EXAMINER

PARVINI, PEGAH

ART UNIT

PAPER NUMBER

1793

MAIL DATE

DELIVERY MODE

12/22/2008

PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 10/551,774	Applicant(s) WHEELER ET AL.	
	Examiner PEGAH PARVINI	Art Unit 1793	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 30 October 2008.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-31 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-31 is/are rejected.
- 7) ☒ Claim(s) 21 is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date _____ | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicants' submission filed on October 1, 2008 has been entered.

It is noted that "non-hydrocarbon" is interpreted to mean a compound which does not strictly and only made up of carbon and hydrogen pursuant to Applicants' definition and clarification in paragraph [0009] of the specification.

Claim Objections

Claim 21 is objected to because of the following informalities: There seems to be a mis-spelling in said claim; "zing" in "calcium strontium zing phosphate" should be changed to "zinc". Appropriate correction is required.

Claim Rejections - 35 USC § 112

The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

Claim 1, 3-14 and 17-31 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites both “glycols” and “other than alcohol”; as it is well known, glycols are considered a type of alcohols. Therefore, Applicants’ recitation of a fluid selected from “glycols” which is “other than alcohols” is indefinite.

The Examiner appreciates Applicants’ description in the Remarks regarding said amendment to claim 1; however, it is evidenced from the recitation of claim 1 that the subject matter which Applicants regard as their invention is clearly and distinctly claimed.

The other claims are indefinite because they depend on claim 1.

Claim 14 is rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Claim 1 recites “other than alcohol or ester”; however, claim 14 recites “propylene carbonate” which is an ester of propylene glycol and carbonic acid. It is unclear whether the milling fluid can be an ester or not with reference to claims 1 and 14. In view of this, it would appear that claim 14 is outside the scope of claim 1.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 1-9, 12-13, 17-20, 22-31 are rejected under 35 U.S.C. 103(a) as being unpatentable over US Patent No. 4,725,317 to Wheeler in view of US Patent No. 4,588,474 to Gross.

Regarding claims 1-9, 12-13, 17-20, and 22-31, Wheeler teaches a process through which flakes of metal pigments are produced by ball milling using an organic liquid or a mixture of organic liquids wherein said liquid or mixture of liquids is chemically inert with respect to the metal powder (column 1, line 64 to column 2, line 5; column 2, lines 19-30 and 62-68; claim 9). Said milling is applied to metal pigments which may be aluminum, bronze or etc. (column 3, lines 54-58). This mixture is referred to as "a second compound" by Wheeler. It is noted as disclosed by Wheeler, the metal flakes so produced are separated, as by wet-sieving, to provide the desired particle size distribution (column 2, lines 23-30). When the metal flakes are brought to a paste-like consistency, there exists 55-80% by weight of metal content; thus, the paste contains metal pigment. This mixture, "a second component", is mixed with an organic binder

Art Unit: 1793

material to form the coherent paste as indicated in column 1, lines 64-68 and column 5, lines 44-49. Additionally, Wheeler discloses the formation of the coherent paste, which comprises flakes of metal pigment, an organic binder medium and the organic liquid vehicle, into pellet, granule, flake or beads (spherical) in order to provide good handling properties and optionally meterability (column 5, lines 49-52). The organic vehicle can be removed from the coherent paste at elevated temperatures (i.e. evaporation) (column 2, lines 45-47; column 5, lines 59-61). Wheeler discloses that the second largest dimension of the metal flakes used may be between 25 to 35 μ m (column 4, lines 9-11); further, the reference discloses that the metal pigment particles are suitably from 2 to 200 micrometers (column 3, lines 60-62). Additionally, Wheeler discloses the possibility of the adding of mineral spirits (i.e. lubricant) as well (column 2, lines 60-61).

Wheeler, also, discloses that the metal flake pigments in particulate form are at least 98% by weight of the particles which are retained on a sieve having 150 micrometer nominal aperture (column 2, lines 40-44).

Moreover, Wheeler discloses the injection moulding of the granulated metal pigment paste product (column 9, lines 44-55); Wheeler discloses that the granule/pellets obtained may be mixed with pellets of PVC or acrylic polymers for injection moulding to provide moulded articles having a bright metallic appearance and in which the aluminum flake is uniformly dispersed (column 9, lines 67-69; column 10, lines 1-4). It is to be noted that the reference, further, discloses the use of said pellets of the disclosed composition in ink systems (column 3, lines 20-24; column 10, lines 25-30). Furthermore, the reference points to the fact that the granules formed from the

Art Unit: 1793

above paste break down and disperse readily in aliphatic and aromatic hydrocarbons, ketones, esters, alcohols and dilute aqueous alkali (column 6, lines 52-56).

With further reference to the limitation of instant claim 8, it is noted that Wheeler discloses the formation of the paste to tablet, pellet, granule, flake or bead (column 5, lines 49-53). Therefore, although the reference may not expressly teach a length and thickness within the claimed ranges as recited in claim 8, it would have been obvious to make the granules having a length and thickness in the claimed ranges motivated by the fact that Wheeler discloses forming the paste into different shape as discussed in details above which have different thicknesses and sizes. Also, it is motivated by the fact that the main purpose of forming the paste into granule is to provide good handling properties; thus, it would be obvious to form granules in the desired and appropriate length and thickness depending on the application of use. Furthermore, it is motivated by the fact that Wheeler discloses that pellets and granules are formed by forcing the precursor coherent paste through a number of suitably sized holds in a plate (column 5, lines 60-65).

Finally, Wheeler, in fact discloses a composition which is a low or non-dusting substantially non-volatile composition having a coherent paste comprising an organic binder medium, flakes of metal pigments and an organic liquid vehicle (Abstract; column 1, lines 64-68).

With reference to the overlapping ranges of concentration of metal flake pigments and the size, it is to be noted that overlapping ranges have been held to establish *prima facie* obviousness. See MPEP § 2144.05.

With reference to the recitation of “for producing a low volatility metal flake pigment composition”, it is to be noted that this is a statement of intended use even though the reference makes indication to said recitation. With reference to such statements, MPEP § 2111.02 states:

During examination, statements in the preamble reciting the purpose or intended use of the claimed invention must be evaluated to determine whether the recited purpose or intended use results in a structural difference (or, in the case of process claims, manipulative difference) between the claimed invention and the prior art. If so, the recitation serves to limit the claim. See, e.g., *In re Otto*, 312 F.2d 937, 938, 136 USP 458, 459 (CCPA 1963).

However, although Wheeler teaches the use of an organic liquid or a mixture of liquids wherein said liquid or mixture of liquids is chemically inert with respect to the metal powder, said reference does not expressly disclose the use of a low volatility fluid selected from glycols.

Nevertheless, it would have been obvious to utilize a low volatility fluid selected from glycols such as ethylene glycol as that taught by Gross motivated by the fact that Gross clearly discloses the use of diol such as ethylene glycol in the milling his milling solution because it makes the milling fluid more effective (column 3, lines 12-22) specially in milling Al 2219; it is noted that Al is used as pigment.

Therefore, it would have been obvious to modify Wheeler in order to include the use of glycols such as ethylene glycol in the milling fluid as that taught by Gross motivated by the fact said compounds makes the milling fluid more effective as detailed above.

With further reference to instant claim 2, it is noted that glycols as that shown above which are used as milling fluids belong to the general group of alcohols as this clearly known in the art of chemistry. Thus, the limitation of claim 2 is met.

With further reference to instant claim 22, it is noted that mineral spirits is a type of mineral oil.

With further reference to instant claim 12, it is noted that while the composition containing organic vehicle and the milled particles has been treated under elevated temperature, it would have been obvious that not only organic vehicle is evaporated but also the flakes have gone through some thermal treatment absence clear evidence showing the contrary.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wheeler in view of Gross as applied to claims 1 and 13 above, and further in view of US Patent No. 6,210,474 to Romano, Jr. et al.

Regarding claim 14, the combination of Wheeler and Gross teach the process of milling pigment using milling fluid as detailed above.

The combination of references does not specifically disclose the use of a compound such as propylene carbonate. Nevertheless, it would have been obvious to utilize ester solvents such as propylene carbonate in a milling process as that taught by Romano, Jr. et al. motivated by the fact that, first, Romano, Jr. et al. is drawn to a process involving milling pigments which is a relevant art as the instant invention, second, it is motivated by the fact that the use and selection of a solvent such as

Art Unit: 1793

propylene carbonate depends on the requirements of the specific application, such as desired surface tension and viscosity, the selected pigment, etc (Abstract; column 5, lines 46-60). It is noted that Romano, Jr. et al. is also drawn to processes involving preparation of ink which is a relevant field of art as that of the instant invention.

Claim 14 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wheeler in view of Gross as applied to claims 1 and 13 above, and further in view of US Patent Application Publication No. 2002/0117080 to Okutsu et al.

Regarding claim 14, the combination of Wheeler and Gross teach the process of milling pigment using milling fluid as detailed above.

The combination of references does not specifically disclose the use of a compound such as dipropylene glycol monoethyl ether. Nevertheless, it would have been obvious to utilize a water-soluble organic solvents such as dipropylene glycol monoethyl ether to wet crude pigment and the water-soluble inorganic salt in a milling process such as that taught by Okutsu et al. motivated by the fact that since during the milling process, the temperature is increased, such compounds are more suitable in terms of safety ([0030]). Further, it is noted such solvents are preferred because they can be dissolved in water, but they do not substantially dissolve an inorganic salt which is used as the grinding aid ([0028], [0030]).

Art Unit: 1793

Claims 10-11 and 21 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wheeler in view of Gross as applied to claims 1 and 13 above, and further in view of US Patent No. 5,879,436 to Kramer et al.

Regarding claims 10-11 and 14, the combination of Wheeler and Gross teaches the process of milling pigment using milling fluid as detailed above.

Although Wheeler in view of Gross may not expressly disclose the use of a corrosion inhibitor such as one of those claimed in claim 21, it would have been obvious to one ordinary skill in the art to utilize a corrosion inhibitor such as phosphate- or borate-containing pigments as that taught by Kramer et al. during milling process motivated by the fact that Kramer et al. disclose the use of corrosion inhibitors such as phosphate- or borate-containing compounds during the dispersion of pigments by milling (column 17, lines 52-63; column 18, lines 16-20).

With further reference to claims 10 and 11, it is noted and obvious to one of ordinary skill in the art that that said corrosion inhibitors such as phosphate- containing compounds modify to treat the pigment or metal powders or flakes by making them anticorrosive.

Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wheeler in view of Gross as applied to claim 2 above, and further in view of US Patent No. 5,071,794 to Shaikh.

The combination of Wheeler and Gross teaches the process of milling pigment using milling fluid as detailed above.

Art Unit: 1793

Said combination does not expressly disclose the use of n-pentyl alcohol or n-hexyl alcohol in the milling fluid; however, the use of an alcohol such as n-pentyl alcohol or n-hexyl alcohol in the milling fluid of the combination of Wheeler in view of Gross would have been known to one skilled in the art motivated by the fact that Shaikh discloses that the use of alcohols in milling certain components such as (A)-(F) is preferable wherein the alcohol may be n-pentyl alcohol or n-hexyl alcohol (column 4, lines 47-55). It is noted that as apparent from Shaikh, the use of such alcohols in milling fluid or liquids is known.

Claims 15 and 16 are rejected under 35 U.S.C. 103(a) as being unpatentable over the combination of Wheeler in view of Gross as applied to claim 2 above, and further in view of US Patent No. 3,619,233 to Hipp et al. as evidenced by US Patent No. 4,629,512 to Kondis.

The combination of Wheeler and Gross teaches the process of milling pigment using milling fluid as detailed above.

Said combination does not expressly disclose the use of n-pentyl alcohol or n-hexyl alcohol in the milling fluid. Nevertheless, Hipp et al. disclose butyl carbitol acetate as the preferred solvent used in combination with other additives in a milling fluid (column 4, lines 36-55). It would have been obvious to one of ordinary skill in the art that carbitol acetate is the same as diethylene glycol monoethyl ether acetate as that, also, evidenced by Kondis (column 3, lines 60-66).

Therefore, it would have been obvious to utilize diethylene glycol monoethyl ether acetate (or carbitol acetate) of Hipp et al. in the milling fluid of the combination of Wheeler in view of Gross motivated by the fact that as shown by Hipp et al. the use of certain solvents such as carbitol acetate as the most preferred one in a milling fluid is known; further, this is motivated by the fact that the milling fluid of Hipp et al. involves fine powders of materials such as alumina, a known pigment in the art (column 3, line 72 to column 4, line 35).

Response to Amendment

Applicants' amendment to claim 1, filed October 1, 2008, is acknowledged. However, said amendment does not place the application or the claim in condition for allowance.

Response to Arguments

Applicants' arguments filed October 1, 2008 have been fully considered but they are not persuasive.

With reference to Applicants' argument that the metal pigment in Wheeler is already in powder or flake form, it is respectfully, submitted that, as detailed out above, the metal pigments go through the ball milling process as shown in column 2, lines 19-21 and claim 9 for be milled.

With reference to Applicants' argument that the components, "organic binder", "organic liquid", and "metal pigment" are not milled together, it is, respectfully, submitted that claim 1 of instant invention does not claim such. In fact, claim 1 claims milling metal powder in a milling fluid wherein the milling fluids comprises a low volatility fluid selected from glycols and non-aqueous, non-hydrocarbon fluids that are both solvent and water miscible other than alcohols or esters. There is no recitation on milling metal flake pigment in a milling fluid comprising an organic liquid and an organic binder; further, it is noted that the recitation of instant claim 6 makes it clear that organic binder is added when intended to change the paste into granules. In fact, the milling fluid used by Wheeler is referred to as "organic liquid vehicle" or the like.

Applicants have argued that claim 9 disclose a second component comprising the metal pigment which is obtained by milling in an organic liquid but this is separate stage from the step of mixing the paste.

It is, respectfully, submitted that the Applicants do not claim or recite having the organic medium in the milling fluid; in fact, based on the disclosure of instant claim 6, the organic medium is added to form the granules.

Applicants' argument with respect to the disclosure of glycol compounds by Wheeler which is used as the organic binder material and not the milling fluid has been considered and are persuasive; however, it is moot in view of the new ground(s) of rejection as set forth above.

Art Unit: 1793

It is noted that previously, claims 1, 4-9, 17-20, and 23-31 were rejected over Wheeler under 103(a); however, now claims 1, 4-9, 13, 17-20, 23-31, have been all rejected over Wheeler in view of Gross. It is again noted that claim 13 has not been rejected in view of Verhoff et al. or any combination containing Verhoff et al.

Applicants have argued that Wheeler does not describe milling metal flakes in a fluid that is both water and solvent miscible. The Examiner, respectfully, submits that Wheeler discloses that the milling fluid is organic liquid vehicle(s); this is taken to read on said limitation absence evidence showing the contrary. In addition, the ground(s) of rejection has been changed in the Office Action as detailed above which is different than the one(s) presented before; instant claim 1 and a number of other claims, as shown above, have been rejected over Wheeler in view of Gross. Therefore, said argument is moot.

Applicants have argued that Gross is concerned with chemically milling whereas instant invention discloses a mechanical milling. The Examiner, respectfully, submits that mechanical milling is not claimed as the sole milling mechanism in the instant claims as said limitation is not found in claim 1 and claim 23 utilizes the language of "comprising", and Wheeler meets said limitation as detailed above. Additionally, Gross was not (in previous Office Actions) and is not (in instant Office Action) relied on for any rejection alone; it has been used in combination with other references. Furthermore, in response to Applicants' arguments against the references individually, one cannot show

Art Unit: 1793

nonobviousness by attacking references individually where the rejections are based on combinations of references. See *In re Keller*, 642 F.2d 413, 208 USPQ 871 (CCPA 1981); *In re Merck & Co.*, 800 F.2d 1091, 231 USPQ 375 (Fed. Cir. 1986).

Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Pegah Parvini whose telephone number is 571-272-2639. The examiner can normally be reached on Monday to Friday 8:00am-4:30pm.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Jerry Lorengo can be reached on 571-272-1233. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/P. P./
Examiner, Art Unit 1793

/Michael A Marcheschi/
Primary Examiner, Art Unit 1793